EARLY DIAGNOSIS OF GASTRIC CARCINOMA

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SURGERY offers the one cure for stomach cancer, and success in this depends absolutely upon a diagnosis being made early in the case. For when the malignant growth is large enough to be easily diagnosed, involvement of the organism is usually so great in extent, that surgical interference merely hastens the fatal ending. Bringing consideration down to the clinical details of the subject, it is truly unfortunate that no absolutely positive symptoms or methods of examination have been found for early cancer of the stomach. Nevertheless, as the result of a close observation of this subject, running over several years, I am convinced that a number of these cases can be diagnosed in the early stages of the disease, and in time for hope of cure in the surgical way. It may be said at the onset that this is but rarely done to-day, and further, that little can be expected along the lines of simple clinical observations of these cases.

Three main facts appear as the *sine qua non* of an early diagnosis: (1) A very close study of the laboratory findings and symptomatic details in all cases of gastric disease that do not accurately or most

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plausibly belong to the benign affections; (2) full experience in observing and examining cases of gastric disorders by one who is always on the alert for cancer, and who has a courageous, willing, and intelligent patient to deal with, and (3) the assistance of an understanding surgeon, whose depth of mind, as well as whose technique of hand, is broadened by ripe experience.

Cancer is a disease which begins as a small nidus in the glandularis. In its incipiency it is a small accumulaton of cells, microscopic in size, causing no symptoms, either subjective or objective, and thus cannot be diagnosed. Insiduously the cells rapidly multiply, accumulate in mass, and infiltrate surrounding tissues. Clinical changes now ensue which are mostly objective, and but rarely observed by the patient. The diagnosis of such early disease can be made only from the laboratory findings of the gastric contents, to which it may be said that the subjective and other objective symptoms are but rarely present, or if so, are of no value in the specific way. Of course, a case must be seen early, and it must be remembered that in these cases we deal only with small clinical facts, in a stomach at best but little known to us. Therefore it is that mistakes—mostly of omission—are liable to occur. The one significant keynote to lead us right in the work is the constant and progressive presence of abnormal findings in the gastric contents. What are they?

Hemorrhage.—This is usually minute is but rarely seen as such, and is almost always occult. The expression method of extracting stomach contents must not be resorted to—it is too liable to be performed with trauma—but just a simple aspiration, enough to overcome the force of gravity and to raise the meal through the tube. The bottle I have described serves well for this. (Extracting

Test Meals, *New York Medical Journal,* June, 1908.) If retching occurs during the process the presence of blood is of no value in the suggestive way, and should be discounted. We should not be anxious to empty the stomach at these times—10 or 20 c.c. will do for these examinations. When a patient strains continually and under all conditions, and our suspicions of malignancy have been aroused in the case, a few meals extracted under nitrous oxide anesthesia may be wise. When blood is constantly present in meals extracted twice a week, we should be on our guard—It is more liable to be cancer than ulcer. This symptom is found in about 20 per cent. of the early cases, and its absence does not necessarly exclude cancer, since in about half of the cases of this disease hemorrhage is not observed in the vomitus even late; but still in many of these, blood in small quantities is present in the stomach from an early date. Examining the feces for blood in these early cases is of no value—the blood is too small in amount and is digested and absorbed, and thus not liable to give the reaction. We should be careful not to permit the taking of flesh food for twenty-four hours preceding the test meals. Washing the stomach before the meal is taken, or the night before, is inadvisable. Lavage of the empty stomach and examining the water for blood is not so good as the test meal method—we want the longer presence of the meal in the stomach, the gastric motility, the secretion, and the normal increase of the blood to the stomach during digestion to encourage the bleeding from the free surface.

Pus Cells and Bacteria.—These come next in significance. Pus cells are not products of a normal stomach, and when they are found (excluding that which may be swallowed in sputum, from the oral cavity, or in the stomach of a phlegmonous gastritis) they are indicative of ulceration. In my

experience, they are often found in the stomach in early cancer, proving, I believe, that ulceration is common in early malignant growths. They are not very numerous and rather difficult to discern among the amylum of test meals. Lavage, or extraction after 10 minutes of normal saliva instillations and centrifuging the return, gives the best results in the way of examination. The cells are sometimes found in dense conglomeration suggestive of a slough from an ulcered surface. When these cells are regularly found, and particularly when red blood cells are also present, we should be on our guard. With them the bacterial flora of the stomach contents is also increased. The cocci seen are either the staphylococci, streptococci, or diplococci. A common type of organism, which may be markedly predominant, is a streptobacillus. Loops from the test meals suffice well for the bacterial examinations. The presence of what may be considered as increased numbers of microorganisms can only be judged in a relative way. They are found in test meals from nonmalignant and normal stomachs, and their nature, whether suppurative or not, is difficult to determine. But when one type of them largely predominates, and is present constantly with blood and pus cells, they are of much significance. The Boas-Oppler bacilli are found late in cancer.

The presence of minute particles of tumor tissue may be found and would be conclusive. These are very uncommon in early cases. The same may be said of loose tumor cells which are always doubtful in their nature—they resemble the free nuclei of digested normally free cells too closely.

Hydrochloric Acid.—In the beginning of cancer in an otherwise healthy stomach the acid is slightly increased. This is due to irritation of the growth or its toxins, and is significant only when it is on the increase up to a certain point and then takes on

a steady fall. In some cases of cancer, and in ulcus carcinomatosum, it may be present to the very end. Then again, stomachs (normal and pathological) vary so in their hydrochloric acid contents, and this secretion is influenced by so many conditions, that its mere presence or absence at one time is of no value in this connection. The practical point in the way of diagnosis is its steady progress, either upward and then downward, or just downward (according as the case is early or later). Its rise upward is much more rapid than its subsequent fall. When it begins to decline it starts slowly, acquiring speed as it comes downward, and runs an average fall of about 4° in a week. In a suspicious case giving this excursion or a downfall of total hydrochloric acid, we should be on our guard, lest a tumor be palpable in the epigastrium a month or two afterward.

On the gastric enzymes so much reliance cannot be placed. The tests for them are not so accurate as those for acid, and they are liable to vary more than the HCl—depending upon the part of the stomach that is affected, and this may be anywhere. As the hydrochloric acid runs low, the organic acids begin to appear. Tests for their beginning should be made, as well as for other evidences of fermentation and delayed motility. There is liable to be retardation in motility before actual dynamic obstruction exists. In other cases little delay is observed, although fermentation is liable to be increased above the normal.

The Solomon test for gastric carcinoma is sometimes positive in an early case. Its absence is not significant in the negative way since it may not be present even in an advanced case. But it is a measure along with the others which may be helpful. The method consists of washing out the stomach the evening before, and then on the follow-

ing morning introducing 400 c.c. of normal salt solution. This solution is removed after a short stay in the stomach, and tested for the presence of albumin and for the proportion of nitrogen. Marked turbidity with Esbasch's reagent (picric acid), or the presence of more than 30 mg. of nitrogen indicates the presence of carcinoma.

Upon the history of heredity and subjective stomach symptoms, little dependence can be placed in the matter of diagnosis. "Family cancer," even more than "family tuberculosis," is only of historical significance. Subjective symptoms, one and all, are of no value in the way of early diagnosis, since many, if not most, cases begin and progress markedly without as with them. When they are present, they are the same as those found in the benign and simple stomach conditions, and may even be of less intense form. Marked anorexia, eructations, aversion to meats, pain, pressure, distress, vomiting, hematemesis, tumor and so on are all late symptoms. Of some value, however, is loss of weight. This begins rather early in the case in a slow way, and hastens later on. To record this best, it is advisable for the patient to weigh himself stripped each morning after his bladder and rectum have been emptied and before he has partaken of food or drink. Careful observations should be made and a record kept in ounces of the changes in weight. A loss of a pound or more in a week is suspicious, and conclusive when the laboratory picture continues strongly suspicious. But when making these observations nothing should be said about dieting, excepting that the patient should continue eating and drinking as before. If we curtail a normal person's diet, he is liable to lose in weight; and if we enlarge it, or add a fluid or semisolid diet—a common practice in treating digestive disorders—he may gain even in the face of a cancer being present in

the stomach. Above all, we should be watchful for the patient who has dieted himself before coming to us.

To tell a patient, in a soft, guarded way, that he has a tuberculosis which can be cured, usually insures his hearty cooperation to bring this result about. Likewise, in a suspicious case of carcinoma, to inform him that a serious stomach disorder is imminent (we need not mention cancer), and that it is impossible to find out what it is unless he carries out our orders and reports regularly for observation and examination, usually makes him attentive in the way of carrying out our wishes. Office visits are better in these observations than placing the patient in a hospital.

In patients who present themselves for treatment of gastric troubles, view with suspicion every one over 40 years of age who does not show improvement after a course of treatment, whatever the diagnosis may be. Penzoldt rightfully advises that, in these cases, the diagnosis of cancer must either be made or refuted. At those ages also we should be on our guard with every case that gives a history of a "good stomach" before the present illness. In the diagnosis of early cancer laxity in thoroughness and expectant measures may be handmaids of disaster leading to a disagreeable surprise. It should never be forgotten that it is the usual thing that when a tumor manifests its presence, the case is past the hope of cure. In favorable cases it takes from one to four weeks of steady observation to make a diagnosis of early malignant disease of the stomach. In these, the careful examination of six or more test meals is unusually necessary. Then, with a reasonable certainty that cancer of the stomach exists (and that it is not in the cardia), the case should be turned over to a surgeon for exploratory incision, and if the diagnosis has been con-

firmed, total extirpation of the diseased area, adhesions, and metastases should be performed. It may be incidentally remarked that unless the abdomen is very fat, exploratory incision can be satisfactorily performed under one-tenth of one per cent. solution of cocaine. Under this, when the peritoneal cavity is entered, some care should be exercised not to impinge roughly on the parietal peritoneum (it is sensitive), nor should there be any tugging on the mesenteries when examining the stomach or intestines (patients are liable to vomit). In most instances, with a little extra care and patience, the examination can be made most satisfactorily under this form of local anesthesia, the posterior wall of the stomach can be explored, and, if need be, the entire hand can be put into the peritoneal cavity so as to reach some distance beyond the incision of entrance. Patients will submit to an exploratory incision under cocaine, but often refuse operation when a general anesthetic is to be used. Usually about an ounce of cocaine solution is employed at these times, representing only one-half a grain of cocaine, a safe quantity for an adult. Ether or chloroform can be quickly substituted when operative intervention is indicated.

There is no always nor no never in medicine. This is well exemplified in the early diagnosis of this disease. The surgeon has a right to believe that many of these cases can be diagnosed earlier than he usually sees them. But he must also remember that a few cannot. And the internist likewise must be respectful of his full duty to these patients, and not fail to gain or not lose sight of the valuable moment in which substantial help might have been offered.